

Listing of Claims:

This listing of claims will replace all prior versions, and listing, of claims in the application.

1. (Currently Amended) A digital imaging apparatus, comprising:
 - an optical sensor capable of converting an object image into a detected image;
 - an analog-to-digital converter coupled to the optical sensor, the analog-to-digital converter capable of converting the detected image to digital image information;
 - a plurality of heterogeneous computational elements capable of processing the digital image information to produce a processed digital image, a first computational element of the plurality of heterogeneous computational elements having a first fixed architecture and a second computational element of the plurality of heterogeneous computational elements having a second fixed architecture, the first fixed architecture being different than the second fixed architecture;
 - and
 - an interconnection network coupled to the plurality of heterogeneous computational elements and to the analog-to-digital converter, the interconnection network capable of providing ~~a processed digital image from the digital image information to the plurality of heterogeneous computational elements~~, by configuring the plurality of heterogeneous computational elements for performance of a first imaging function of a plurality of imaging functions in response to first configuration information that configures interconnections in the interconnection network between at least the first and second computational elements, and by reconfiguring the plurality of heterogeneous computational elements for performance of a second imaging function on the digital image information of the plurality of imaging functions in response to second configuration information that reconfigures the interconnections in the interconnection network between at least the first and second computational elements, the first imaging function being different than the second imaging function.
2. (Original) The digital imaging apparatus of claim 1, further comprising:
 - focusing means capable of providing the object image to the optical sensor.

3. (Original) The digital imaging apparatus of claim 2, wherein the focusing means comprises a focusing assembly, the focusing assembly further comprising: a lens; a shutter; an aperture; and a focusing motor.

4. (Currently Amended) The digital imaging apparatus of claim 1, wherein the optical sensor is at least one of a ~~plurality of optical sensors, the plurality of optical sensors comprising:~~ a charge coupled device (CCD), a charge injection device (CID), an optical complementary metal oxide silicon (CMOS) array, an optical bipolar junction transistor (BJT) array, a photogate array, or a photodiode array.

5. (Original) The digital imaging apparatus of claim 1, further comprising: an analog output interface coupled to the interconnection network, the analog output interface capable of converting the processed digital image to an analog form; and a viewfinder screen coupled to the analog output interface, the viewfinder screen capable of visually displaying the analog form of the processed digital image.

6. (Original) The digital imaging apparatus of claim 1, further comprising: an analog output interface coupled to the interconnection network, the analog output interface capable of converting the processed digital image to an analog form; and an analog output port coupled to the analog output interface, the analog output port capable of outputting the analog form of the processed digital image.

7. (Original) The digital imaging apparatus of claim 1, further comprising: a first memory couplable to the interconnection network, the first memory capable of storing the processed digital image.

8. (Original) The digital imaging apparatus of claim 7, wherein the first memory is selectively removable flash memory.

9. (Original) The digital imaging apparatus of claim 7, further comprising: a second memory coupled to the interconnection network, the second memory capable of storing

the first configuration information and the second configuration information.

10. (Currently Amended) The digital imaging apparatus of claim 9, wherein the second memory is synchronous dynamic random access memory (SDRAM).

11. (Currently Amended) The digital imaging apparatus of claim 9, wherein the first memory and the second memory are at least one of a plurality of memory types, the plurality of memory types comprising: flash memory, DRAM, SRAM, SDRAM, FeRAM, MRAM, ROM, EPROM and E²PROM.

12. (Original) The digital imaging apparatus of claim 1, further comprising: a digital output port coupled to the interconnection network, the digital output port capable of outputting the processed digital image.

13. (Original) The digital imaging apparatus of claim 1, wherein the processed digital image is provided as a plurality of processed digital image data packets.

14. (Original) The digital imaging apparatus of claim 13, further comprising: a digital output interface coupled to the interconnection network, the digital output interface capable of selecting a plurality of processed digital image data words from the plurality of processed digital image data packets and assembling the plurality of processed digital image data words to form the processed digital image.

15. (Original) The digital imaging apparatus of claim 1, wherein the digital image information is provided as a plurality of digital image information data packets.

16. (Original) The digital imaging apparatus of claim 1, further comprising: a light source capable of providing light for reflection from an object to form the object image.

17. (Original) The digital imaging apparatus of claim 1, further comprising: a printer coupled to the interconnection network, the printer capable of printing the processed

digital image on a tangible medium.

18. (Original) The digital imaging apparatus of claim 1, further comprising: a dry copier coupled to the interconnection network, the dry copier capable of transferring the processed digital image to a tangible medium.

19. (Original) The digital imaging apparatus of claim 1, further comprising: a data transmitter coupled to the interconnection network, the data transmitter capable of transmitting the processed digital image to a remote location.

20. (Currently Amended) The digital imaging apparatus of claim 19 ~~18~~, wherein the data transmitter is at least one of ~~the following plurality of data transmitters~~: an analog (voice band) modem; a digital modem; a digital subscriber line modem; and a cable modem.

21. (Currently Amended) The digital imaging apparatus of claim 1, wherein the plurality of imaging functions comprises at least two of ~~the following functions~~: linear filtering; nonlinear filtering; morphological filtering; median filtering; local weighted median filtering; center weighted median filtering; vector weighted median filtering; multichannel image recovery; multiframe image restoration; iterative image restoration; motion detection; motion estimation; low pass filtering; multirate filtering; wavelet-based multirate filtering; autofocusing; contrast enhancement; and blur removal.

22. (Currently Amended) The digital imaging apparatus of claim 1, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures comprising at least two of ~~the following corresponding functions~~: linear filtering, non-linear filtering, memory, addition, multiplication, complex multiplication, subtraction, synchronization, queuing, over sampling, under sampling, adaptation, configuration, reconfiguration, control, input, output, and field programmability.

23. (Original) The digital imaging apparatus of claim 1, wherein the detected image comprises an electrical signal corresponding to brightness and color variations of the

object image.

24. (Original) The digital imaging apparatus of claim 1, wherein the digital imaging apparatus is embodied as at least one integrated circuit.

25. (Original) The digital imaging apparatus of claim 1, wherein the digital imaging apparatus is embodied as a digital camera.

26. (Currently Amended) The digital imaging apparatus of claim 1, wherein the digital imaging apparatus is embodied as one or more of ~~the following~~: a scanner, a printer, or a dry copier.

27-48. (Canceled)

49. (Currently Amended) A digital imaging apparatus, comprising:
~~focusing means capable of providing an object image;~~

an optical sensor capable of converting an ~~the~~ object image into a detected image;

an analog-to-digital converter coupled to the optical sensor, the analog-to-digital converter capable of converting the detected image to a plurality of digital image information data packets;

a plurality of heterogeneous computational elements, a first computational element of the plurality of heterogeneous computational elements having a first fixed architecture and a second computational element of the plurality of heterogeneous computational elements having a second fixed architecture, the first fixed architecture being different than the second fixed architecture;

an interconnection network coupled to the plurality of heterogeneous computational elements and to the analog-to-digital converter, the interconnection network capable of providing ~~a plurality of processed digital image data packets from the plurality of digital image information data packets,~~ by configuring the plurality of heterogeneous computational elements for performance of a first imaging function ~~of a plurality of imaging functions~~ in response to first configuration information that configures the interconnections in the interconnection network between at least the first and second computational elements, and by reconfiguring the plurality

of heterogeneous computational elements for performance of a second imaging function ~~of the plurality of imaging functions~~ in response to second configuration information that reconfigures interconnections in the interconnection network between at least the first and second computational elements, the first imaging function being different than the second imaging function thereby providing a plurality of processed digital image data packets based on at least the first or second imaging function; and

a digital output interface coupled to the interconnection network, the digital output interface capable of selecting a plurality of processed digital image data words from the plurality of processed digital image data packets and assembling the plurality of processed digital image data words to form a processed digital image.

50. (Currently Amended) The digital imaging apparatus of claim 49, wherein the optical sensor is at least one of ~~a plurality of optical sensors, the plurality of optical sensors comprising~~ a charge coupled device (CCD), a charge injection device (CID), an optical complementary metal oxide silicon (CMOS) array, an optical bipolar junction transistor (BJT) array, a photogate array, or a photodiode array.

51. (Original) The digital imaging apparatus of claim 49, further comprising:
an analog output interface coupled to the interconnection network, the analog output interface capable of converting the processed digital image to an analog form;
a viewfinder screen coupled to the analog output interface, the viewfinder screen capable of visually displaying the analog form of the processed digital image;
an analog output port coupled to the analog output interface, the analog output port capable of outputting the analog form of the processed digital image; and
a digital output port coupled to the interconnection network, the digital output port capable of outputting the processed digital image.

52. (Currently Amended) The digital imaging apparatus of claim 49, wherein the plurality of imaging functions comprises ~~at least two of the following functions~~: linear filtering; nonlinear filtering; morphological filtering; median filtering; local weighted median filtering; center weighted median filtering; vector weighted median filtering; multichannel image

recovery; multiframe image restoration; iterative image restoration; motion detection; motion estimation; low pass filtering; multirate filtering; wavelet-based multirate filtering; autofocus; contrast enhancement; and blur removal.

53. (Original) The digital imaging apparatus of claim 49, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures comprising at least two of the following corresponding functions: linear filtering, non-linear filtering, memory, addition, multiplication, complex multiplication, subtraction, synchronization, queuing, over sampling, under sampling, adaptation, configuration, reconfiguration, control, input, output, and field programmability.

54. (Currently Amended) The digital imaging apparatus of claim 49 ~~4~~, wherein the digital imaging apparatus is embodied as a digital camera.

55. (New) A method of processing a digital image comprising:
converting an object image into a detected image via an analog-to-digital converter;
converting the detected image to digital image information;
providing a plurality of computational elements;
providing an interconnection network having interconnections coupled to each of the plurality of computational elements and to the analog-to-digital converter;
configuring the plurality of computational elements via the interconnections between at least the first and second computational elements for performance of a first imaging function;
and
reconfiguring the plurality of computational elements for performance of a second imaging function in response to second configuration information by changing the interconnections between at least the first and second computational elements, the first imaging function being different than the second imaging function.